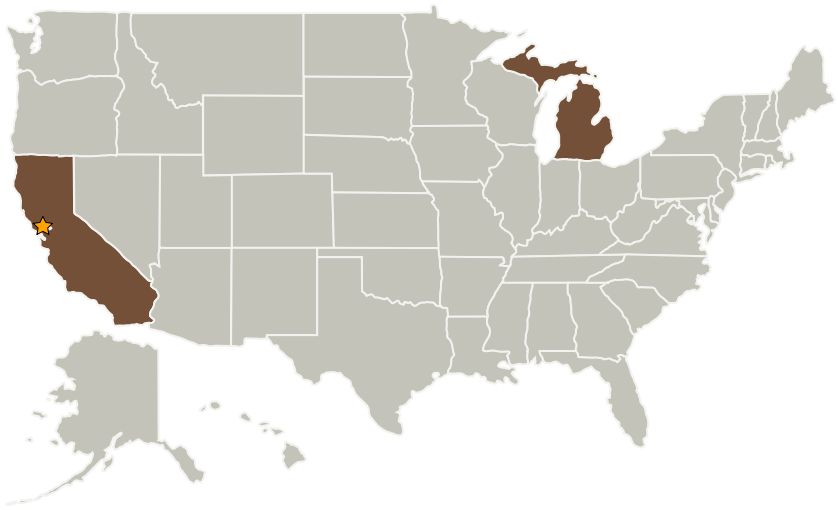
Airborne Wide Area Imager for Wildfire Mapping and Detection, Phase I

Completed Technology Project (2008 - 2008)

Project Introduction

An advanced airborne imaging system for fire detection/mapping is proposed. The goal of the project is to improve control and management of wildfires in order to reduce loss of life and property. The system will offer approximately a 3X increase in operating efficiency compared to current systems and will be designed for autonomous or remote operation in an unmanned airborne system (UAS) but will also be suitable for operation in manned aircraft. The system includes a multi-band imaging sensor, position and attitude sensor, an interface to an air-to-ground or satellite data communication link, and a data processing system with software for; fire detection, image geo-coding, and image compression. The sensor head is an innovative design combining high resolution framing devices (cameras) with a step-stare scanning mirror. This configuration results in high spatial resolution imagery and wide area coverage. The design of the sensor head is flexible allowing for a variety of cameras including; RGB, CIR, SWIR, MWIR, and LWIR. The system can be operated at various altitudes allowing it to serve a variety of missions. We envision several versions of the instrument, one weighing less than 75 pounds and a smaller version weighing less than 20 pounds.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Xiomas Technologies	Supporting Organization	Industry	Ypsilanti, Michigan

Primary U.S. Work Locations	
California	Michigan

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

John E Green

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.5 Range Tracking, Surveillance, and Flight Safety Technologies